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AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A transmitter apparatus comprising:

an input receiving section that receives inputs of multiple synchronized signals $r_1, ..., r_N$;

an asynchronizing section that delays the multiple input received synchronized signals $r_1, ..., r_N$ by times $t_1, ..., t_N$, **respectively,** to output multiple asynchronized signals $v_1, ..., v_N$;

a modulating section that modulates the output multiple asynchronized signals $v_1, ..., v_N$ to output modulated signals $w_1, ..., w_L$ ($1 \leq L \leq N$); and

a transmitting section that transmits the output modulated signals $w_1, ..., w_L$, **and**

wherein **the delay times $t_1, ..., t_N$ are respectively proportional to values $u_1, ..., u_N$ which are computed from a prestored integer value a, a predetermined nonlinear transformation $f(\cdot)$ over a finite field, and the equations:**

$$u_1 = a;$$

$$u_{i+1} = f(u_i), \ (1 \leq i \leq N).$$

~~[the delay time $t_1, ..., t_N$ is shorter than a reciprocal number of a minimum value of clock rates of the multiple input received synchronized signals $r_1, ..., r_N$.]~~

2. (Currently Amended) The transmitter apparatus according to claim 1, further comprising:

a storing section that stores the delay times $t_1, ..., t_N$ in advance,

wherein the asynchronizing section delays the respective multiple synchronized signals $r_1, ..., r_N$ by the time $t_1, ..., t_N$ stored in the storing section.

3. (Currently Amended) The transmitter apparatus according to claim 1, wherein the modulating section classifies the asynchronized signals $v_1, ..., v_N$ into L ($L \leq N$) signal groups to send the respective classified L signal groups to any one of L spread spectrum modulators not to be overlapped with one another to output the modulated signals $w_1, ..., $ ~~v_L~~ w_L.

4. (Original) The transmitter apparatus according to claim 3, wherein the transmitting section radio-transmits the respective modulated signals $w_1, ..., w_L$ by L radio frequency modulators each using a different carrier frequency.

5. (Original) The transmitter apparatus according to claim 3, wherein the transmitting section

sends the modulated signals w_1, ..., w_L to I-channels and Q-channels of each of L/2 radio frequency modulators each using a different carrier frequency not to be overlapped with one another to radio-transmit the respective obtained transmitting signals.

6. (Original) The transmitter apparatus according to claim 3, wherein L = 2 is established.

7. (Currently Amended) The transmitter apparatus according to claim 1, **wherein the delay times t_1, ..., t_N are shorter than the clock period of the signals r_1,..., r_N.** ~~[wherein the delay time t_1, ..., t_N is proportional to u_1, ..., u_N, that is determined by the following equation by a prestored integer value a and a predetermined nonlinear transformation f(·) over a finite field:]~~

~~[$u_1 = a$;]~~

~~[$u_{j+1} = f(u_j)$ $(1 \leq j < N)$.]~~

8. (Currently Amended) The transmitter apparatus according to claim ~~[7]~~ **1**, wherein the prestored value a is updated to $a = f(u_N)$ every time when predetermined time passes, and thereby the delay times t_1, ..., t_N is updated.

9. (Currently Amended) The transmitter apparatus according to claim ~~[7]~~ **1**, wherein the predetermined nonlinear transformation f(·) over a finite field corresponds to any one of the following (a) to (e):

(a) transformation using a Chebyshev polynomial of second or more degree,

(b) transformation using Bernoulli mapping,

(c) transformation $f(x) = 2x^2 - px + q \pmod{2^w}$ defined using integers p, q (p mod 4 = 1, $0 \leq q \leq 2^{w-1}$),

(d) transformation using a remainder obtained by dividing any one of transformation results of (a) to (c) by a predetermined integer, and

(e) transformation that is the same form as any one of the above (a) to (d) by a linear coordinate transformation.

10. (Currently Amended) A receiver apparatus comprising:

a receiving section that receives multiple signals as a_1, ..., a_L $(1 \leq L)$;

a delaying section that delays the respective multiple received signals a_1, ..., a_L by time $T - t_1$, ..., $T - t_N$ ($L \leq N$) where T is predetermined constant time without being overlapped with one another to output multiple intermediate signals p_1, ..., p_N;

a demodulating section that demodulates the multiple output intermediate signals p_1, ..., p_N to output demodulated signals r_1, ..., r_N; and

an outputting section that outputs the multiple output demodulated signals r_1, ..., r_N as multiple transmitted synchronized signals, **and**

wherein **the delay times t_1, ..., t_N are respectively proportional to values u_1, ..., u_N which are computed from a prestored integer value a, a predetermined nonlinear transformation f(·) over a finite field, and the equations:**

$$u_1 = a;$$

$$u_{j+1} = f(u_j) \quad (1 \leq j \leq N).$$

11. (Currently Amended) The receiver apparatus according to claim 10, further comprising:

a storing section that stores the predetermined constant time T and times t_1, ..., t_N in advance,

wherein the delaying section obtains delay times of the respective multiple synchronized signals r_1, ..., r_N from time stored in the storing section and delays the synchronized signals by times $T - t_1$, ..., $T - t_N$.

12. (Currently Amended) The receiver apparatus according to claim 10, wherein the delaying section classifies the delay times $T - t_1$, ..., $T - t_N$ into L delay time groups, and uses the respective classified L delay time groups not to be overlapped with the received signals a_1,..., a_L to output the intermediate signals p_1,..., p_N.

13. (Original) The receiver apparatus according to claim 12, where the receiving section obtains the respective received signals a_1, ..., a_L from L radio frequency modulators each using a different carrier frequency.

14. (Original) The receiver apparatus according to claim 12, wherein the receiving section obtains the received signals a_1, ..., a_L from I-channels and Q-channels of each of L/2 radio

frequency modulators each using a different carrier frequency not to be overlapped with one another.

15. (Original) The receiver apparatus according to claim 14, wherein L = 2 is established.

16. (Currently Amended) The receiver apparatus according to claim 10, **wherein the delay times $t_1, ..., t_N$ are shorter than the clock period of the signals $r_1, ..., r_N$,** ~~[wherein the time $t_1, ..., t_N$ is proportional to $u_1, ..., u_N$, that is determined by the following equation by a prestored integer value a and a predetermined nonlinear transformation f(·) over a finite field:]~~

~~[$u_1 = a$;]~~

~~[$u_{j+1} = f(u_j)$ $(1 \leq j < N)$.]~~

17. (Currently Amended) The receiver apparatus according to claim ~~[16]~~ **10**, wherein the prestored value a is updated to $a = f(u_N)$ every time when predetermined time passes, and thereby the delay times $t_1, ..., t_N$ is updated.

18. (Currently amended) The receiver apparatus according to claim ~~[16]~~ **10**, wherein the predetermined nonlinear transformation f(·) over a finite field corresponds to any one of the following (a) to (e):

(a) transformation using a Chebyshev polynomial of second or more degree,

(b) transformation using Bernoulli mapping,

(c) transformation $f(x) = 2x^2 - px + q \pmod{2^w}$ defined using integers p, q (p mod 4 = 1, $0 \leq q \leq 2^{w-1}$),

(d) transformation using a remainder obtained by dividing any one of transformation results of (a) to (c) by a predetermined integer, and

(e) transformation that is the same form as any one of the above (a) to (d) by a linear coordinate transformation.

19. (Currently Amended) A transmission method comprising:

the input receiving step of receiving inputs of multiple synchronized signals $r_1, ..., r_N$;

the asynchronizing step of delaying the multiple input received synchronized signals r_1,

..., r_N by times t_1, ..., t_N, **respectively,** to output multiple asynchronized signals v_1, ..., v_N;

the modulating step of modulating the output multiple asynchronized signals v_1, ..., v_N to output modulated signals w_1, ..., w_L ($1 \leq L \leq N$); and

the transmitting step of transmitting the output modulated signals w_1, ..., w_L, **and**

wherein **the delay times t_1, ..., t_N are respectively proportional to values u_1, ..., u_N which are computed from a prestored integer value a, a predetermined nonlinear transformation f(·) over a finite field, and the equations:**

$$u_1 = a;$$

$$u_{j+1} = f(u_j) \quad (1 \leq j \leq N).$$

~~[the delay time t_1, ..., t_N is shorter than a reciprocal number of a minimum value of clock rates of the multiple input received synchronized signals r_1, ..., r_N.]~~

20. (Currently Amended) The transmission method according to claim 19,

wherein a storing section that stores the delay times t_1, ..., t_N in advance is used; and

wherein the respective multiple synchronized signals r_1, ..., r_N are delayed by the time t_1, ..., t_N stored in the storing section in the asynchronizing step.

21. (Original) The transmission method according to claim 19, wherein the asynchronized signals v_1, ..., v_N are classified into L ($L \leq N$) signal groups and the respective classified L signal groups are sent to any one of L spread spectrum modulators not to be overlapped with one another to output the modulated signals w_1, ..., w_L in the modulating step.

22. (Original) The transmission method according to claim 21, wherein the respective modulated signals w_1, ..., w_L are radio-transmitted by L radio frequency modulators each using a different carrier frequency in the transmitting step.

23. (Original) The transmission method according to claim 21, wherein the modulated signals w_1, ..., w_L are sent to I-channels and Q-channels of each of L/2 radio frequency modulators each using a different carrier frequency not to be overlapped with one another to radio-transmit each of the obtained transmitting signals in the transmitting step.

24. (Original) The transmission method according to claim 23, wherein $L = 2$ is established.

25. (Currently Amended) The transmission method according to claim 19, **wherein the delay times $t_1, ..., t_N$ are shorter than the clock period of the signals $r_1, ..., r_N$.** ~~[wherein the delay time $t_1, ..., t_N$ is proportional to $u_1, ..., u_N$, that is determined by the following equation by a prestored integer value a and a predetermined nonlinear transformation f(·) over a finite field:]~~

~~[$u_1 = a$,]~~

~~[$u_{j+1} = f(u_j)$ $(1 \leq j < N)$.]~~

26. (Currently Amended) The transmission method according to claim ~~[25]~~ **19**, wherein the prestored value a is updated to $a = f(u_N)$ every time when predetermined time passes, and thereby the delay times $t_1, ..., t_N$ is updated.

27. (Currently Amended) The transmission method according to claim ~~[25]~~ **19**, wherein the predetermined nonlinear transformation f(·) over a finite field corresponds to any one of the following (a) to (e):

(a) transformation using a Chebyshev polynomial of second or more degree,

(b) transformation using Bernoulli mapping,

(c) transformation $f(x) = 2x^2 - px + q \pmod{2^w}$ defined using integers p, q ($p \bmod 4 = 1$, $0 \leq q \leq 2^{w-1}$),

(d) transformation using a remainder obtained by dividing any one of transformation results of (a) to (c) by a predetermined integer, and

(e) transformation that is the same form as any one of the above (a) to (d) by a linear coordinate transformation.

28. (Currently Amended) A reception method comprising:

the receiving step of receiving multiple signals as $a_1, ..., a_L$ $(1 \leq L)$;

the delaying step of delaying the respective multiple received signals $a_1, ..., a_L$ by time $T - t_1, ..., T - t_N$ $(L \leq N)$ where T is predetermined constant time without being overlapped with one another to output multiple intermediate signals $p_1, ..., p_N$;

the demodulating step of demodulating the multiple output intermediate signals $p_1, ..., p_N$ to output demodulated signals $r_1, ..., r_N$; and

the outputting step of outputting the multiple output demodulated signals r_1, ...,r_N as multiple transmitted synchronized signals, **and**

wherein the delay times t_1, ..., t_N are respectively proportional to values u_1, ..., u_N which are computed from a prestored integer value a, a predetermined nonlinear transformation f(·) over a finite field, and the equations:

$$u_1 = a;$$

$$u_{i+1} = f(u_i) \quad (1 \le i \le N).$$

29. (Currently Amended) The reception method according to claim 28,

wherein a storing section that stores the predetermined constant time T and times t_1, ..., t_N in advance is used; and

wherein delay times of the respective multiple synchronized signals r_1, ..., r_N is obtained from time stored in the storing section and the synchronized signals are delayed by the time T - t_1, ..., T - t_N in the delaying step.

30. (Currently Amended) The reception method according to claim 28, wherein the delay times T - t_1, ..., T - t_N are classified into L delay time groups, and the respective classified L delay time groups are used not to be overlapped with the received signal a_1,..., a_L to output the intermediate signals p_1,..., p_N in the delaying step.

31. (Original) The reception method according to claim 30, where the respective received signals a_1, ..., a_L are obtained from L radio frequency modulators each using a different carrier frequency in the receiving step.

32. (Original) The reception method according to claim 30, wherein the received signals a_1, ..., a_L are obtained from I-channels and Q-channels of each of L/2 radio frequency modulators each using a different carrier frequency not to be overlapped with one another in the receiving step.

33. (Original) The reception method according to claim 32, wherein L = 2 is established.

34. (Currently Amended) The reception method according to claim 28, **wherein the delay times**

t_1, ..., t_N are shorter than the clock period of the signals r_1,..., r_N. ~~[wherein the time t_1, ..., t_N is proportional to u_1, ..., u_N, that is determined by the following equation by a prestored integer value a and a predetermined nonlinear transformation f(·) over a finite field:]~~

~~[$u_1 = a$;]~~

~~[$u_{j+1} = f(u_j)$ $(1 \leq j < N)$.]~~

35. (Currently Amended) The reception method according to claim ~~[34]~~ 28, wherein the prestored value a is updated to $a = f(u_N)$ every time when predetermined time passes, and thereby the delay times t_1, ..., t_N is updated.

36. (Currently Amended) The reception method according to claim ~~[34]~~ 28, wherein the predetermined nonlinear transformation f(·) over a finite field corresponds to any one of the following (a) to (e):

(a) transformation using a Chebyshev polynomial of second or more degree,

(b) transformation using Bernoulli mapping,

(c) transformation $f(x) = 2x^2 - px + q \pmod{2^w}$ defined using integers p, q (p mod 4 = 1, $0 \leq q \leq 2^{w-1}$),

(d) transformation using a remainder obtained by dividing any one of transformation results of (a) to (c) by a predetermined integer, and

(e) transformation that is the same form as any one of the above (a) to (d) by a linear coordinate transformation.

37. (Currently Amended) A computer-readable storage device, having stored thereon instructions for execution by ~~program causing~~ a computer, ~~[(]~~including FPGA (Field Programmable Gate Array), DSP (Digital Signal Processor), ASIC (Application Specific Integrated Circuit)~~[)]~~ to carry out the functions recited in claim 1. ~~function as the respective sections described in any one of claims 1 to 9.~~

38. (Currently Amended) A computer-readable storage device, having stored thereon instructions for execution by ~~program causing~~ a computer, ~~[(]~~including FPGA (Field Programmable Gate Array), DSP (Digital Signal Processor), ASIC (Application Specific

Integrated Circuit)~~[[]]~~ to **carry out the functions recited in claim 10.** ~~function as the respective sections described in any one of claims 10 to 18.~~